

## **REMARKS**

Applicants would like to thank the Examiner for the careful consideration given the pending application and for clarifying in a telephone call on September 2, 2009 that the Office Action dated March 3, 2009 is Non-Final.

### **1. Claim Objections – 35 USC § 103**

Claims 1, 3 and 5-6 stand rejected under 35 USC § 103(a) as being unpatentable over WO/2003/029307 (hereinafter "Takahashi et al.") in view of US Patent No. 6,224,739 (hereinafter "Reetz et al."). Applicants respectfully traverse this ground of rejection.

Applicants submit to establish a *prima facie* case of obviousness, there must be some teaching, suggestion or motivation to combine the references, there must be some reasonable expectation of success based upon the teachings of the references, and the prior art references, when combined, must teach or suggest all of the claim limitations. Applicants submit Takahashi et al. in view of Reetz et al. fails to teach or suggest all of the claim limitations of the present invention.

Claim 1 of the present invention is directed to a method for the hydrogenation of unsaturated polymers containing double bonds, characterized in that a metal-containing colloid is first prepared under reducing conditions in the presence of an unsaturated polymer present in latex form, whereby the pH during the preparation of the metal-containing colloid is in the range from 3 to 6, the colloid-containing latex mixture obtained is then hydrogenated, the metal-containing colloid is then separated from the latex and the polymer latex obtained is isolated. Applicants submit Takahashi et al. in view of Reetz et al. fails to teach or suggest to one skilled in the art all of the claim limitations set forth above.

Takahashi et al. is directed to a process for hydrogenating a conjugated diene wherein the hydrogenation is conducted in a reaction system prepared by incorporating the catalyst and the basic compound in a solution or latex of the conjugated diene polymer. According to the process of Takahashi et al., a pH > 7 is necessary during the hydrogenation (See Paragraphs 55 and 56). Takahashi et al. specifically teaches that this process is difficult to achieve under neutral or acid conditions (See Paragraph 56).

Takahashi et al. further teaches in Examples 3 and 4 **that catalysts prepared under acidic conditions gave a small percentage of hydrogenation** (See Paragraph 0112).

As noted in the Office Action, Takahashi et al. does not teach or suggest the use of colloids. And according to the Office Action this deficiency of Takahashi et al. is overcome by combination with Reetz et al. Applicants submit, even the combination of Takahashi et al. with Reetz et al. fails to render the present invention obvious. Reetz et al. is directed to a process for preparing solvent-stabilized metal colloids. Specifically, Reetz et al. teaches the preparation of such colloids by electrochemistry. Reetz et al. provides no teaching of preparing the claimed colloids at the claimed pH. In fact, Reetz et al. does not disclose preparing a colloid at any specific pH. Further, Applicants submit even if one skilled in the art would be motivated to combine the colloid disclosed in Reetz et al. with Takahashi et al., one would not arrive at the instant invention. Applicants submit none of the references teach the use of a colloid in a hydrogenation reaction wherein the colloid is prepared with the claimed pH.

Applicants submit the pH during the preparation of the colloid is important. If the pH range is over 6, the unsaturated polymer latex form and the colloid could coagulate. (See Example 3, page 10).

Accordingly, Applicants submit, at least for the reasons above the cited art does not render the present invention obvious. Claims 3, 5 and 6 depend from and add further limitations to independent Claim 1, and are allowable at least for the same reasons as independent Claim 1.

## **2. Claim Rejections – 35 USC § 103(a)**

Claims 1, 3 and 5-6 stand rejected under 35 USC § 103(a) as being unpatentable over Takahashi et al. in view of U.S. No. Patent 4,801,643 ("hereinafter Craig"). Applicants respectfully traverse this ground of rejection and incorporate their above stated argument.

As discussed in more detail above, Takahashi et al. provides no teaching of a method for the hydrogenation of unsaturated polymers containing double bonds, characterized in that a **metal-containing colloid** is first prepared under reducing

conditions in the presence of an unsaturated polymer present in latex form, whereby the pH during the preparation of the metal-containing colloid is in the range from 3 to 6.

First and foremost, Takahashi et al. does not teach the use of a colloid and secondly Takahashi et al. provides no teaching of producing the colloid at the claimed pH.

According to the Office Action, one skilled in the art would have been motivated to modify the dispersion in Takahashi et al. with the colloid at the pH levels taught in Craig because an acidic suspension promotes the dissolution of the catalytically active ingredients. Applicants traverse this ground of rejection. First and foremost, Craig does not even teach or suggest the use of metal containing colloids; rather, Craig teaches the use of colloids based on cellulose, starch or alginate derivatives. Secondly, Craig focuses on using such dispersions in the manufacture of paints, binders, inks etc. Craig provides no suggestion that such dispersions would be useful alternatives during hydrogenation reactions.

Further, Applicants submit one skilled in the art at the time the invention was made would have recognized that these types of cellulose colloids are drastically chemically different and one can not merely extend the disclosed pH levels of Craig to metal contain colloids. Especially when faced with the Statements in Examples 3 and 4 of Takahashi et al., (catalysts prepared under acidic conditions gave a small percentage of hydrogenation)

Accordingly, Applicants submit, at least for the reasons above the cited art does not render the present invention obvious. Claims 3, 5 and 6 depend from and add further limitations to independent Claim 1, and are allowable at least for the same reasons as independent Claim 1.

### **3. Claim Rejections – 35 USC § 103(a)**

Claim 2 is rejected under 35 USC § 103(a) as being unpatentable over Takahashi et al. and Reetz et al. or Takahashi et al. and Craig as applied to Claims 1, 3 and 5 above, in view of U.S. Patent No. 5,470,906 (hereinafter "Craun et al."). Applicants respectfully traverse this ground of rejection and incorporate their above stated argument.

As discussed in detail above, the cited combinations fail to render the present invention obvious. Applicants further submit combination with Craun et al. fails to overcome the deficiencies of the cited art. Craun et al. is directed to any dry emulsion paints based on emulsion polymeric binders. Even if a person skilled in the art would combine the teaching of Takahashi et al. and of Craun et al. he would not get our invention because Takahashi et al. does not disclose metal-containing colloids as explained above. Furthermore in Craun et al. no metals as catalysts are mentioned and therefore one skilled in the art would lack any motivation to combine the teachings with the cited art.

#### **4. Claim Rejections – 35 USC § 103(a)**

Claim 6 stands rejected under 35 USC § 103(a) as being unpatentable over Takahashi et al. and Reetz et al. or Takahashi et al. and Craig as applied to Claims 1, 3 and 5 above, and further in view of U.S. No. Patent 4,994,528 (hereinafter "Abraham et al."). Applicants respectfully traverse this ground of rejection and incorporate their above stated argument.

As discussed in detail above, the cited combinations fail to render the present invention obvious. Applicants further submit combination with Abraham et al. fails to overcome the deficiencies of the cited art. Abraham et al. is directed to a process for preparing elastomers from hydrogenated butadiene-acrylic-copolymers. For the hydrogenation a transition metal catalyst and a trialkylaluminium catalyst (column 11, line 64 - 68) are used. Palladium, platinum or rhodium must be used as tetra- or trikis(triphenyl)-phosphine derivate (column 12, line 8 - 12). According to the Office Action, Abraham et al. teaches the claimed temperature and pressure ranges for the hydrogenation reaction. However, Applicants submit the Examiner's case is still fundamentally flawed, as none of the art, alone or in combination, actually teach or suggest the claimed colloid with the claimed pH. Accordingly, Applicants submit the claimed invention is allowable in view of the cited art.

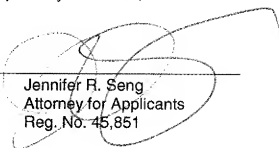
#### **5. Authorization**

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The USPTO is hereby authorized to charge any fees for an extension of time or those under 37 C.F.R. 1.16 or 1.17, which may be required by this paper, and/or to credit any overpayments to Deposit Account No. 50-2527.

Respectfully submitted,

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